

REMARKS

This amendment is responsive to the Office Action dated July 25, 2005. Applicants have amended claims 1, 7 and 25, and added new claims 35 and 36. Claims 10 and 14 were canceled previously. Claims 1-9, 11-13, and 15-36 are pending.

Claim Rejection Under 35 U.S.C. § 102

The Office Action rejected claims 1-3 and 17 under 35 U.S.C. 102(e) as being anticipated by Stein et al. (US 2004/0230246). Applicants respectfully traverse the rejection. Stein et al. (Stein) fails to disclose all of the features of the claimed invention, as required by 35 U.S.C. 102(e), and provides no teaching that would have suggested the desirability of modification to include such features.

Stein fails to teach or suggest a programmer for a medical device comprising an internal antenna mounted within a programmer housing, wherein the internal antenna defines an aperture, and a battery bay that extends into the programmer in substantial alignment with the aperture, wherein the battery bay extends at least partially into the aperture, as recited by Applicants' independent claim 1.

The Office Action referred to FIG. 9 of the Stein reference and asserted that Stein discloses an internal antenna (66) which defines an aperture and a battery bay (76) that extends into the aperture formed by the antenna loop (66). However, Stein does not describe a battery bay that extends at least partially into the aperture of coil 66.

Stein describes a circuit board 68 carrying a pair of battery contacts 77. Batteries 76 are inserted between the battery contacts 77. A rear opening 86 permits batteries 76 to be replaced by a user. Coil 66 is positioned between circuit board 68 and a case front 60. However, Stein fails to disclose or suggest a battery bay extending at least partially into an aperture defined by coil 66.

Stein does not discuss the aperture formed by coil 66, nor any structural relationship or distance between a battery bay and the aperture of the coil. Consequently, Stein does not disclose a battery bay extending at least partially into an antenna aperture, as set forth in claim 10. Moreover, Stein clearly provides no teaching concerning increasing noise immunity of the antenna, as suggested by the Office Action.

Applicants also do not admit or acquiesce in the legitimacy of the Stein reference as prior art against the claimed invention, and reserve the right to dispute the prior art status of the Stein reference in any future communication. In view of the structural differences between the invention defined by claims 1-3 and 17 and the Stein device, however, Applicants reserve further comment at this time.

Regarding Applicants' claims 2 and 3, Stein fails to teach or suggest the battery bay oriented such that batteries placed in the battery bay present a load to the internal antenna or the battery bay oriented such that batteries placed in the battery bay present a load to enhance noise immunity of the internal antenna to external electromagnetic interference.

The Office Action asserted that a load is presented to an antenna when batteries are placed within its magnetic field and that FIG. 9 of Stein teaches that the batteries are located within the magnetic field of the antenna and therefore present a load to the antenna. As described above, Stein does not describe the extension of a battery bay at least partially into the aperture of the antenna coil, and provides no details concerning such features. Furthermore, Stein makes no suggestion of the advantages, e.g., presenting a load to an antenna, that can be obtained by at least partially extending a battery bay into an antenna aperture.

Stein fails to disclose all of the limitations set forth in claims 1-3 and 17. For at least these reasons, the Office Action has not established a prima facie case of anticipation of Applicants' claims 1-3 and 17 under 35 U.S.C. 102(e). Withdrawal of this rejection is requested.

Claim Rejection Under 35 U.S.C. § 103

The Office Action rejected claims 4, 15-16, 19-22 and 31-33 under 35 U.S.C. 103(a) as being unpatentable over Stein. Applicants respectfully traverse the rejection. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

For example, Stein fails to teach or suggest a programmer for a medical device comprising a programmer housing, an internal antenna mounted within the programmer housing, wherein the internal antenna defines an aperture, and a battery bay formed within the

programming housing, the battery bay being aligned substantially concentrically with the aperture, as recited in Applicants' independent claim 19.

The Office Action stated that Stein teaches substantially all of the features of Applicants' claim 19, but acknowledged that Stein does not disclose a battery bay that is aligned substantially concentrically with the antenna aperture. However, the Office Action asserted that at the time the invention was made it would have been an obvious matter of design choice to a person of ordinary skill in the art to concentrically align the battery bay of Stein with the aperture formed by the loop antenna.

In Stein, a circuit board 68 carries a pair of battery contacts 77 at a bottom portion of the circuit board. Batteries 76 are inserted between the battery contacts 77. Batteries 76 and battery contacts 77 are certainly not placed in concentric alignment with the aperture of coil 66. Nor does Stein provide any teaching that would have suggested such an arrangement.

Concentric alignment of a battery bay with an aperture of an internal antenna, per claim 19, would not have been an obvious design choice. Neither Stein nor any other prior art teaching would have suggested the desirability of modification to provide such an arrangement. As described in Applicants' disclosure, for example, the placement of the battery bay within the aperture enables the programmer to maintain a smaller size. This feature may be particularly advantageous for reduction of programmer size when larger, consumer-replaceable batteries, such as AAA batteries, are used. Clearly, Stein contemplates smaller batteries that do not even present the size issues that would have caused one of ordinary skill in the art to contemplate size reduction in the manner required by claim 19.

In addition, this arrangement can reduce external magnetic interference to the antenna by providing an RF load, enhancing noise immunity. Of course, Stein fails to provide any teaching concerning noise immunity or antenna loading. Indeed, even if the batteries described by Stein did present a load to coil 66, there is no teaching that would have suggested the further arrangement of the batteries in concentric alignment with the coil aperture, particularly inasmuch as Stein does not even consider the enhanced noise immunity that could be achieved by such an arrangement.

In the absence of such teachings in the prior art, one of ordinary skill in the art would have found the necessary guidance to arrive at the invention of claim 19, only upon access to

Applicants' disclosure, which is impermissible. Applicants respectfully submit that any motivation to make the modifications suggested by the Office Action would have come only from Applicant's own disclosure. Absent a teaching of such motivation in the prior art, the rejection under section 103 is improper and should be withdrawn.

Regarding Applicants' dependent claims 20 and 21, Stein fails to teach or suggest a battery bay oriented such that batteries placed in the battery bay present a load to the internal antenna or the battery bay oriented such that batteries placed in the battery bay present a load to enhance noise immunity of the internal antenna to external electromagnetic interference. Again, Stein does not even mention loading of the antenna for noise immunity, and particularly the loading presented by a battery bay aligned substantially concentrically with an antenna aperture.

The Office Action asserted that a load is presented to an antenna when batteries are placed within its magnetic field and that FIG. 9 of Stein teaches that the batteries are located within the magnetic field of the antenna and therefore present a load to the antenna. As described above, Stein does not disclose a battery bay aligned substantially concentrically with an antenna aperture. Stein also provides no details concerning such features. Furthermore, Stein makes no suggestion of the advantages, e.g., presenting a load to an antenna, that can be obtained by substantially concentrically aligning a battery bay with an antenna aperture.

In reference to Applicants' dependent claims 15, 16, 31 and 32, Stein fails to teach or suggest the internal antenna comprising a plastic frame wound with conductive winding and copper braid shielding substantially surrounding the plastic frame and the conductive winding. The Office Action acknowledged that Stein does not discuss the materials from which the antenna is constructed. However, the Examiner has taken Official Notice that it is well known in the antenna art to construct an internal antenna from a plastic frame wound with conductive winding in order to enhance the noise immunity of the antenna. The Examiner has also taken Official Notice that it is well known in the antenna art to use copper-braiding as a shielding mechanism for antennas to shield the electromagnetic field of the antenna and reduce electrical and electromagnetic interference caused by the antenna.

As described above, Stein provides no details concerning the antenna coil. Furthermore, Stein makes no suggestion of a need to enhance the noise immunity of the antenna or to shield the electromagnetic field of the antenna and reduce electrical and electromagnetic interference

caused by the antenna. Therefore, one of ordinary skill in the art would not have looked to the Stein reference to construct an internal antenna as described by claims 15, 16, 31 and 32.

The Office Action rejected claims 5-9, 11-12, 18, 23-29 and 34 under 35 U.S.C. 103(a) as being unpatentable over Stein in view of Lebel et al. (US 6,648,821). Applicants respectfully traverse the rejection. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

With regard to Applicants' dependent claims 5 and 23, both Stein and Lebel et al. (Lebel) fail to teach or suggest the programmer comprising a first housing member, a first circuit board within the first housing member, a second circuit board disposed over the first circuit board within the first housing member, and a second housing member disposed over the second circuit board to substantially enclose the first and second circuit boards, wherein the first housing member includes a molded area that defines the battery bay adjacent the first circuit board.

The Office Action asserted that Stein teaches the features of Applicants' claims 5 and 23, but acknowledged that Stein does not disclose a second circuit board disposed over the first circuit board. However, the Office Action stated that Lebel discloses a communication device to communicate therapy parameters to an implantable medical device, and that Lebel teaches that additional circuit boards may be added to the communication device as necessary for the communication device to perform additional functions. Therefore, the Office Action asserted that it would have been obvious to one of ordinary skill in the art to incorporate an additional circuit board into the controller of Stein in order for the programmer to perform all of the functions desirable for its use.

Lebel provides no teaching capable of overcoming the deficiencies of Stein. Furthermore, Lebel does not disclose or suggest the features attributed to it by the Office Action. Merely incorporating an additional circuit board is not all that is required by Applicants' claims. Rather, claims 5 and 23 specify a first circuit board within a first housing member, a second circuit board disposed *over* the first circuit board, and a second housing member disposed over the second circuit board to substantially enclose the first and second circuit boards.

With respect to these limitations, the Office Action pointed to Col. 41, line 63 – Col. 42, line 15 of Lebel. However, this passage of Lebel merely refers to the incorporation of one or

more “hybrid circuit boards” within a device housing, with no regard to the particular structural relationship between such boards. Therefore, it is unclear how Lebel could have suggested a second circuit board disposed *over* a first circuit board. In fact, Lebel provides no indication of such a configuration, and merely states that such boards may be mounted “within, on, or even in some cases external to a device housing.”

In reference to Applicants’ dependent claims 8 and 26, neither Stein nor Lebel, either singularly or in combination, teach or suggest the internal antenna mounted to the first circuit board on a side of the first circuit board opposite the second circuit board, and a display is mounted to the second circuit board on a side of the second circuit board opposite the first circuit board.

In the Office Action, the Office Action acknowledged that both Stein and Lebel fail to teach the configuration of the antenna and display units within the controller. However, the Examiner has taken an Official Notice that it is well known in the art to orient the antenna such that it faces toward the patient’s body when the programmer is in use to ensure efficient communication between the programmer and the implantable device. The Office Action further asserted that it is well known to orient the display such that it faces away from the patient’s body in order to allow the patient to observe information on the display while the controller is in use.

Stein and Lebel fail to describe the configuration of the antenna and a display unit on the controller or on circuit boards enclosed within a housing of the controller. In fact, Stein fails to even mention a display. Instead, Stein teaches deadfront status indicators, i.e., indicator lights, to provide indications of the status of the implantable medical device. Furthermore, neither of the cited references provides any motivation to mount an antenna and a display unit on separate circuit boards on sides of the circuit boards facing opposite each other.

The Office Action stated that it would have been obvious to modify the antenna and display units of either Stein or Lebel in order for the antenna to efficiently communicate with the implantable medical device and for the patient to view the information contained on the display unit while the controller is in use. However, FIG. 9 of the Stein reference is contrary to the motivation presented by the Office Action. As illustrated in FIG. 9, Stein teaches the antenna coil 66 and the deadfront status indicators 26, 28, 30 and 32 mounted on the same side of the

controller. Therefore, it would not be obvious to one of ordinary skill in the art to modify the antenna and display units of either Stein or Lebel as described in Applicants' claims 8 and 26.

For similar reasons, Stein and Lebel fail to teach or suggest the first circuit board including telemetry circuitry and the second circuit board including control circuitry to control the display and the telemetry circuitry, the programmer further comprising an electrical interface between the first and second circuit boards, as recited by Applicants' claims 9 and 27. In addition, the Office Action cited Col. 3, lines 8-24 of Lebel as disclosing a first circuit board coupled to a second circuit board via an electrical interface. Applicants can find no such teaching in the cited passage of Lebel, or in any prior art reference of record.

In the Office Action, the Office Action rejected claims 13 and 30 under 35 U.S.C. 103(a) as being unpatentable over Stein in view of Stanton et al. (US 6,249,703). Applicants respectfully traverse the rejection. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

Stein and Stanton et al. (Stanton), either singularly or in combination, fail to describe each and every feature of Applicants' independent claims 1 and 19 including an external antenna coupled to the programmer via a cable, as recited by Applicants' dependent claims 13 and 30. As described above, Stein fails to teach a battery bay extended at least partially into an aperture defined by an internal antenna or a battery bay aligned substantially concentrically with an aperture defined by an internal antenna. Stanton provides no teaching capable of overcoming the deficiencies of Stein.

In view of the foregoing remarks, the Office Action did not establish a prima facie case of obviousness of Applicants' claims 4-9, 11-13, 15-16 and 18-34 under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

CONCLUSION

All claims in this application are in condition for allowance. Applicants respectfully request reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed agent to discuss this application.

Date:

By:

Nov. 22, 2005
SHUMAKER & SIEFFERT, P.A.
8425 Seasons Parkway, Suite 105
St. Paul, Minnesota 55125
Telephone: 651.735.1100
Facsimile: 651.735.1102

Darcy L. Grunwald
Name: Darcy L. Grunwald
Reg. No.: 56,902

AMENDMENTS TO THE DRAWINGS

The attached four sheets of drawings include changes to FIGS. 9, 10, 13 and 14. Applicants' specification refers to "connector 107" in the description of both FIG. 9 and FIG. 10. However, reference number "107" was inadvertently omitted from FIGS. 9 and 10. The attached sheets include new versions of FIGS. 9 and 10 incorporating the omitted reference number "107." In addition, Applicants' specification refers to "connector 113" in the description of both FIG. 13 and FIG. 14. However, reference number "113" was inadvertently omitted from FIGS. 13 and 14. The attached sheets include new versions of FIGS. 13 and 14 incorporating the omitted reference number "113."

Attachment: Replacement Sheets (4)